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DISEASES OF THE CHEST

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C. M. HENDRICKS, EDITOR-IN-CHIEF

(A MONTHLY PUBLICATION)

"The most important factor in diagnosis in the majority of cases of pulmonary tuberculosis is keeping the disease in mind."
Lawrason Brown, M. D.

Editorial Comment

Pneumothorax, "With a Bang"

THIS EXPRESSION used in the 1933-34 issue of the Bulletin by the City of Chicago Municipal Tuberculosis Sanatorium, is very significant. This particular issue of the Bulletin is very interesting and is confined to Collapse Therapy. The City of Chicago is doing a great work and is one of the leaders in dealing with the tuberculosis problem, especially in the application of the principle of "Contagious Disease Control."

The Bulletin cites a changing picture with regard to Collapse Therapy and shows how wide-spread this treatment has become during the past three years. This is of special interest to those of us who began Collapse Therapy in 1907, '08, '09 and '10. We were just as enthusiastic then about pneumothorax as we are now and applied it in bilateral cases, the writer doing his first bilateral case in 1914. This patient is well and holds a very important position today.

We have learned a lot about pneumothorax in the past twenty years—its value and its limitations. The question in the minds of many today seems to be, how early should Collapse Therapy be applied? This question is not a new one; we were debating it twenty years ago. Now that Collapse Therapy is going over "with a bang," we will be interested to see what the end results and conclusions will have been arrived at ten or twenty years from now. Like all things of great value, due to enthusiasm it will be over-worked and in the end these "bang" enthusiasts will arrive at the same conclusions that the "pioneers" in pneumothorax have long since drawn, viz., not to apply it as a routine measure in every case of pulmonary tuberculosis; that each individual case is an entity unto itself; that the wholesale application of any form of Collapse Therapy cannot give the end results that careful study and observation prior to the application of Collapse Therapy as well as during the life of the procedure, can give. Anyway it will be interesting to follow the results of those men who are putting pneumothorax over "with a bang" and applying Collapse Therapy on a "mass production" basis. C.M.H.

Enthusiasm in Collapse Therapy

THE TESTED and proven treatment of tuberculosis by rest is under attack both in the professional and lay mind. This is reflected in the recent article of a popular lay writer on medical subjects (Paul de Kruif) who says: "Just as stethoscopes are useless in detecting early tuberculosis—so in the same way the famous cure by good food, fresh air, and

simple rest in bed is a terribly feeble defense against consumption." This article then elaborates on collapse therapy and particularly surgical measures as employed in a large municipal clinic.

Enthusiastic as I am about pneumothorax and methods of surgical collapse, I believe that the attitude expressed is extremely bad, both for physician and patient.

Although collapse therapy is an absolute essential of treatment in many cases, yet in no case can rest, both mental and physical, be disregarded. Rest is the initial treatment in every case. Many an individual is made suitable for proper collapse therapy only by preliminary rest. In most cases the eventual success of collapse measures can be assured only by continued rest and sanatorium routine.

The progress of treatment demands that clinicians remember these facts, not forgetting that early collapse therapy is also a prime essential in a great many cases. V. S. R.

Treat Yourself? PEOPLE WHO have tuberculosis undoubtedly discuss their disease among themselves more than people with any other disease. Their symptoms, their experiences here and there, this type of treatment and that, this doctor and that, are all freely discussed. To a certain extent this discussion may be harmless and in some instances advantageous. Certainly, some of these people learn something of value from each other which may cause them to avoid many pitfalls previously encountered by a fellow-sufferer. Conversely, many patients actually harm themselves immeasurably by acting upon the advice of some "old head" in the T. B. game.

Many a patient who has been "through the mill" or, in most cases, is still going through it, sets himself up as a walking encyclopedia on tuberculosis. He has been everywhere, seen everything, and read everything regarding tuberculosis. He knows how the disease is cured and is glad to tell a fellow-sufferer about it although he never seems to make the grade himself. In most instances his treatment is not based on medical supervision. He doesn't believe a doctor is necessary in the cure.

A young woman patient who has been tuberculous for three years reported that she had been in contact with several "encyclopedias" in that period of time. They advised her to change doctors, to have a phrenicectomy, to have pneumothorax, to exercise and to rest, and finally to discharge all doctors and treat herself as it was simply a matter of rest, good food, etc. "At first," she said, "I was upset by all this advice and rather undecided about what to do, but I began to notice that my advisors and those who took their advice were dying off, so I decided to stay under medical supervision!"

Many doctors are guilty of the "treat yourself" idea. They send patients home to bed, eggs and milk, or to a health resort and the same, plus plenty of sunshine, but with the advice that the cure depends on the patient's endeavor, and, therefore, no doctor is needed. These same doctors would gesticulate in horror if someone would suggest that no doctor be consulted in acute appendicitis, yet tuberculosis kills many thousands more people annually than does appendicitis. Many of these thousands of deaths might be prevented if proper treatment was instituted early or when proper indications are present.

The problem of tuberculosis no longer resolves itself into the statement that the early case gets well on rest and the remainder die. Moderately advanced and far advanced cases can be successfully treated in the majority of cases by some form of therapy, medical or surgical, and no patient should be denied his opportunity through poor advice.

It is common to hear a hopeless patient say "If only my doctor had told me the truth in the beginning." R. B. H. JR.

Insomnia in Tuberculosis MANY TUBERCULOUS individuals suffer with insomnia. Others who complain of insomnia actually sleep much

more than they realize, and, usually, as much as they need.

Several facts must be taken into consideration in arriving at the actual needs of the patient in regard to sleep. In the first place, patients who are carrying out an absolute rest treatment, and therefore are in bed practically the entire time, do not require nearly so much sleep as they did when they were active. Six hours in the twenty-four, in most such cases, is all that is needed, and it is not necessary that this be continuous. Many patients who are on bed rest sleep at short intervals through the day, and the aggregate of these intervals is usually more than the patient himself realizes.

Patients frequently have a morbid fear of some serious result following insomnia, and consequently plead for something to make them sleep more. As a result of such pleading, real harm is often done the patient by the administration of sleep-producing drugs — more harm than could result from the loss of sleep.

In most instances where sleep-producing preparations are prescribed, these consist either of Barbital derivatives, or of opiates. If the former is used, the patient is usually depressed and listless the following day. He does not have his usual appetite, and therefore does not eat as he should. Because of the sedative effect of such preparations, digestion is impaired even if the patient eats but little, and soon there is a disturbance which becomes more or less chronic.

If opiates are prescribed, all of the secretions are altered, constipation is either induced or aggravated, an increase in the dose is soon necessary and, eventually, the undesirable addiction to the drug results.

There are conditions which justify the use of opiates, the most common one being when there is actual insomnia resulting from cough. At times this can only be controlled by the administration of codein, but this should not be kept up indefinitely, even in such cases.

There are simpler measures to use for insomnia, and these are often more successful than we think. Since most insomnia is the result of a passive congestion in the central nervous system, the somnifacients most in use produce sleep by inducing a certain amount of local anemia in the same area.

This result can often be obtained by the use of hot milk or some other light lunch, since this relieves the cerebral congestion by taking the blood from that area to the stomach to digest the lunch. Frequently, too, sleep may be induced by reading.

Knowing the untoward effects of sleep-producing drugs—we should exhaust all of the simpler methods at hand before resorting to them. R. B. H. SR.

The Correct Position in Bed

FREQUENTLY the physician is asked what position it is most desirable for the patient with tuberculosis of the lungs to assume when lying in bed.

Since the prime object in carrying out a strict bed rest is to secure, as near as possible, complete rest of the lungs, that position should be assumed in which the individual patient coughs least, since coughing certainly brings into action every part of the lung.

In bilateral disease, particularly when there is cavitation, the patient should be encouraged to lie on the more seriously affected side. This procedure not only decreases the expansion of the diseased lung and thereby promotes rest, but it also decreases the cough by stopping the continuous drainage from the cavity. The patient may turn to the opposite side at intervals to allow the cavity to drain.

Some patients cough less and are more comfortable when lying on the back—while with others this position aggravates the cough, therefore, there can be no rule which applies to every individual, and the best advice is that each individual should assume that position which to him seems the most comfortable, and the one least inclined to increase the cough.

R. B. H. SR.

The Importance of Physiologic Measures In the Treatment of Tuberculosis

BY
F. M. POTTENGER, M. D.
Monrovia, California

The Sanatorium.—The treatment of tuberculosis was still in such an unorganized state at the beginning of this century that gloom and hopelessness settled down on every home in which the disease was found. At that time the accomplishments of such pioneers as Brehmer, Dettweiler and Trudeau had barely penetrated the world's medical literature. It must be stated, however, that the sanatorium idea was spreading rapidly among the more careful students of the subject on the continent, particularly in Germany, and was making some headway in other countries. While the sanatorium was not backed by a comprehensive program, such as we have today, yet it was proving its worth to the few who were fortunate enough to be treated therein, and it was gaining converts steadily. Life in the open air with superalimentation, under the guidance of a physician who was a student of tuberculosis, were largely depended upon for the results which were obtained at that time.

To the few tuberculous patients, however, who had the good fortune to be treated in a sanatorium, the word soon took on a magic meaning because of the fact that health was regained therein, while it rarely occurred as a result of the "let-alone" policy on the outside. The sanatorium became recognized as a place where those in despair could find encouragement, and the hopeless could take hope; yet as we look at it from the standpoint of our present program of sanatorium treatment, it was very inefficient; but it was the best that there was and a great improvement over anything else that had ever been suggested for the care of the tuberculous patient. Inefficient as it was, it gave an opportunity for many to regain health who otherwise would have been consigned to certain death.

The Evolution of Treatment—The treatment of tuberculosis has been an evolution and will continue to be for some time to come. The last word has by no means been said. Early diagnosis and prompt treatment would make great changes even today. It would reduce the necessity of using surgical methods to a much smaller group than are receiving such aid today.

Surgical procedures are advocated with such zeal and persistence in the literature of tuberculosis in recent years, that there is a possibility that they may occupy a much larger part of the stage than they should. They are not intended for the treatment of simple cases of early tuberculosis, but for the more advanced cases which have undergone destructive changes. Being successful in these, their use is now being urged in earlier cases, forgetting the tendency for tuberculosis to heal, and oblivious of the injury that may be done to the respiratory and circulatory mechanism by operative measures. Since operative procedures are crowding into the background many important and successful features of therapy which have stood the test of time, it might not be without value to call attention once more to physiologic measures and the technic of employing them, and the results which may be expected from their use, particularly while the lesion is limited. Every practitioner of medicine should realize the importance of the physiologic principles of rest, diet and hygienic living in the treatment of active tuberculosis, and furthermore, should apply them in the treatment of patients immediately on a diagnosis being made. No matter what the final treatment shall be, or who shall carry it out, these simple measures should always be instituted when the diagnosis of active tuberculosis is made.

Treatment by surgical methods, in no way conflicts with the use of physiologic

measures; in fact, should always be supplemented by them in order to produce the best results; so should surgical measures always be applied when the conditions indicate their use. The only place for difference of opinion is as to when the one or the other shall be relied upon as the main procedure. Surgical measures will be necessary for many patients until the tuberculous problem is so thoroughly controlled that early diagnosis and immediate treatment are made the rule.

Those who treated tuberculosis with the inefficient methods which were at the profession's command in the early years of this century produced many favorable results and need not be ashamed of their accomplishment, provided they were using the measures intelligently and conscientiously as they were understood at that time.

Some Results of Early Treatment—The results at the beginning of the century in no way compare with those produced by the best technic of today. We had an inadequate conception of rest; little respect for the digestive capabilities of the patient; no mechanical methods of adjusting the thoracic cage to the lung volume and inducing enforced rest; and a very imperfect conception of the importance of controlling the patient; yet we assisted many patients in overcoming their disease. Eleven of the thirty-six patients who spent the first Christmas at the Pottenger Sanatorium in 1904 are still living, and taking a normal part in life's activities. Twenty are known to be dead; and the condition of five is unknown. This shows a percentage of 35.5 of those whose whereabouts are known and 30.5 per cent of the entire group of patients as carrying on the natural activities of life thirty-one years after completing cure.

This group was not made up of any too favorable a class of patients either. Many of them suffered from advanced disease; yet they were chosen with greater care than we show in admitting patients to private institutions today. At that time we excluded those whom we felt reasonably sure would not improve. However, as time advanced and experience grew, our opinion as to the degree to which the disease is curable also changed, and the percentage of patients for whom help is witheld has became steadily less and less. Today, with our better understanding of the application of physiologic principles, and with the development of mechanical measures and surgical procedures, the ability to bring about healing of the disease is steadily increasing.

What can be accomplished with physiologic measures—No one, no matter how wide his experience, can predict with accuracy whether or not a given patient will regain health. Very often the impossible seems to have been accomplished. It is rare, however, that we see a patient decline who enters upon treatment with a favorable prognosis. On the other hand, we frequently see an unfavorable prognosis turned to a favorable one. There seems to be an almost unbelievable and unlimited tendency for tuberculosis to heal, when it is properly treated.

Unless the lungs are in a condition of extensive acute softening, further breaking down and further extension of the disease may be checked in a very large proportion of patients provided they are treated by rest under proper guidance, as is done in a well conducted sanatorium.

The reason for qualifying the sanatorium to one that is well conducted is because there are sanatoria and sanatoria. No institution can go beyond the conception and intelligence of its directing head plus the facilities which are at his disposal for carrying out his conceptions.

Our best present-day technic of sanatorium treatment is very efficient; our poorest makes a mockery of the sanatorium idea. Our best regimen consists of the application of measures which will assure to the patient the most efficient physiologic balance consistent with the pathologic conditions present, aided when necessary by the particular operative procedure which will assist in overcoming mechanical conditions which interfere with healing.

The principles as established by Breh-

mer in the first successful attempt at sanatorium treatment—the isolation of the patient with hygienic living under the constant guidance of a physician—have been modified by our increasing knowledge, and expanded to include the following:

1. Rest—general and local during the clinically and pathologically active stage of the disease;
2. Exercise when danger of toxemia and spread of the disease has passed, provided there are no contraindicating complications;
3. An abundance of food suited to the nutritional requirements and the digestive peculiarities of the patient without superalimentation;
4. A psychology of hopefulness and confidence in being able to meet the clinical and pathological problems which arise, which is justly based on past accomplishment;
5. The application of air and light baths according to the capabilities of the patient to gain benefit therefrom;
6. The use of focal stimulating measures such as sanocrysin and nonspecific protein therapy.
7. Tuberculin for its focal reaction and its assistance in increasing immunization and promoting healing.
8. Operative measures for overcoming mechanical conditions which interfere with healing, and for adjusting the decreased lung volume to the capacity of the thoracic cage.

The difficulty with so much of the physiologic program is its simplicity. Among the physiologic measures there is no single spectacular remedy to which the patient can point as offering "cure." When people are ill they desire to have something directed definitely toward their cure, such as iron and liver for anemia; insulin for diabetes, and an operation for appendicitis. Medical men have not yet arrived at the point where they think physiologically, in terms of the patient's reaction; so they, too, think too much in terms of the disease. Naturally they are baffled without some direct mode of attack. Therefore, it is little wonder that the value of physiologic measures is underrated, and the technic of their application suffers from a lack of preciseness.

Had tuberculin been introduced to the profession without the great fear of its producing harm, and had sanocrysin been first used in smaller doses, these remedies would both have proved to be very useful adjuncts to the healing of the disease and furthermore of great value to both physician and patient in helping to maintain an interest in treatment sufficiently long for healing to take place.

What I particularly wish to emphasize in this paper is the part that the physiologic measures will contribute to cure when applied with proper technic. There is a time when practically all patients suffering from clinical pulmonary tuberculosis can secure a healing by establishing a normal physiologic balance. In early tuberculosis compensatory changes are made with ease, and the mechanical factors which prevent healing rarely complicate the problem until after the disease has existed for some time. Even in acute exudative lesions, with or without cavity, the mechanical factors are not unfavorable. Compensation may be made readily and healing may follow. The factors which interfere most with healing of early tuberculosis are the fatigue brought about by exertion, particularly overexertion in case the patient is not put at rest; the toxins which are engendered in the diseased focus, and whose action is increased by exertion; and the cough which disseminates the bacillus-laden secretions into uninfected portions of the lungs and thereby spreads the disease. The patient is put in the best condition for checking these and for withstanding those that can not be avoided by physical rest in hygienic surroundings with a diet of nutritious food, and by such physical rest as comes from an optimistic frame of mind, and a philosophical attitude toward the problems which must be faced.

Harmful psychic stimuli may be minimized by assuring the patient of the curability of the disease, by making him understand the harmful influence which is ex-

erted upon his protective mechanism by worry, fear and unhappiness, by aiding him in the solution of his distressing business, social and domestic problems, and by creating within him a confidence in the possibility of securing a favorable result.

It is not practical to discuss any one physiologic principle except in relationship to others, because no one who understands tuberculosis and the tuberculous patient would attempt to apply one measure only; nor could it be done if he did. So in the following presentation I shall discuss rest as being the most important physiologic principle in the treatment of active tuberculosis, and the one for which an effective technic has been developed, but I shall assume that other necessary hygienic measures are fully utilized.

Rest and the technic of employing it—Certain definite accomplishments may be particularly attributed to rest which should be recognized by every one who is called upon to devise a therapeutic regimen for patients suffering from tuberculosis.

Rest is that condition which makes the least demands upon the patient's energy-producing mechanism. It also makes a minimum demand upon the patient's respiratory mechanism and the diseased lungs are brought into a state of minimum activity. This is the state most favorable for reducing the absorption of toxins, for preventing the spread of the disease, for limiting the destruction of tissue, and for permitting the patient to improve his general metabolism and develop resistence to the disease.

The technic of applying rest is all important. Dettweiler's requirement that patients recline for many hours each day was a great improvement in therapeutic technic when compared with Brehmer's idea of exercise to strengthen and enlarge a heart which was supposed to be too small for the body which it served. The weakness of this program, however, as was gradually discovered, lay in the exercise which was permitted when the patient was not reclining. Often the good effects accomplished by the hours of reclining were counteracted by the exercise which was allowed when not resting. So today many patients are preventing healing and causing unnecessary spread of infection and unnecessary destruction of lung tissue by exercise at a time when they should be resting. This failure to apply rest is not only the cause of many unfavorable results in patients in whom healing should take place, but it is costly in time and money.

A frank discussion of rest as applied in the various sanatoria should be of interest to the medical staffs of all institutions and should prove to be of value to patients.

The technic which we employ at the Pottenger Sanatorium is based on the idea that physical rest should be maintained as long as clinical activity is present or is likely to be brought about by exertion. Upon entering the sanatorium every patient with active disease is put to bed. Bathroom privileges and permission to sit up in an easy chair while the bed is being made is given to all except those who are very ill. But this is the extent of the privilege. For those who are very ill these privileges are withheld until the activity has quieted down; however, I have rarely found typhoid rest necessary except during some emergency, such as hemorrhage.

Bed baths are given by the nurse until such time as the patient is able to be up three hours without tiring; and in case the patient is very ill even the linen is changed without the patient getting out of bed. All food is served on trays so that the patient is not required to exert himself to get ready for meals. In order to still further reduce the motion in those tissues which are the seat of greatest activity, a shot bag is worn for hours each day over the affected part.

Reading, games, sewing, knitting and other simple ways of occupying the spare time are suggested for those whose disease is quiescent. The many necessary calls made by the members of the staff, nurses, maids, porters, tray boys, paper boys and so forth, afford something to interest and occupy the time of all. Diversion is also furnished by visits from other

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A Decade of International Statistics on Tuberculosis

BY
ARNOLD MINNIG, M. D.
Denver, Colorado

ON EVERY HAND one is impressed with the lowering of tuberculosis mortality; yet it might be questioned whether this means the ultimate early and complete eradication of this disease with the weapons now available and being used, or whether there will remain, for centuries at least, the dormant threshhold level of cases which lie in wait, like a snake, ready to coil and strike whenever and wherever vigilance is relaxed.

According to the latest report on the death rate in 46 large American cities for 1934, the whole group was 4% lower (6.96 per 10,000) than in 1933. However, sixteen cities showed increases: Denver 3%, Cleveland 3%, Buffalo 3%, Minneapolis 8%, Cincinnati 2%, Indianapolis 3%, Houston 6%, Rochester, New York, 18%, Columbus 15%, Oakland 12%, Atlanta 16%, Akron 3%, Syracuse 3%, Omaha 39%, Paterson 7%, and Elizabeth 21%. Akron, Ohio, had the lowest rate, 3.5, and San Antonio the highest, 14.5. Negro deaths showed a rate of 22.09 per ten thousand, while the white rate was 5.6.

To combat a disease it becomes essential not only to know its origin and its nature, but, in addition, its frequency, which can only be discerned from accurate statistics. Statistics are the means of evaluating the success of measures used to combat a disease. Statistics may be confused by false or changing grouping, by inexact diagnoses, and, especially, by reducing or extending the realms of registration areas. Modern statistics require mathematical formulation and checking which were not available for earlier statistics. With the aid of correlation statistics, Wolff showed that in the states of Europe with growing industrialization, with increasing general well being of the average population, mortality decreased. He noted a relationship between home crowding and tuberculosis but not between carcinoma and housing.

In Germany, the last decade saw a reduction from 12 to 7.5 deaths per 10,000 from all forms of tuberculosis. Flatzeck-Hofbauer believes a common level of 7 to 8 per 10,000 has been reached in Germany, United States, and Great Britian as a result of a well organized plan of combat through hygienic living. Flatzeck further believes the regression in tuberculosis occurred in two distinct periods: the first, 1885-1925, in which there was a definite diminution of the mortality, morbidity, and illness displayed mainly throughout the working and great middle classes; in the second period, from 1925 on, the results concern the improvement of lethality through advances in medicine and social conditions. Ascher attributes the lowering death rate in the older age classes to a protection of this class against heavy labor by machines and shortening of the working hours. Gunkel lays stress on the social factor, the hereditary factor, the specific and the medical therapeutic factors as contributing to diminishing mortality. The greater decrease in Germany is accounted for by the efficiency of the organized social and medical attack. Geissler, over years of observations, noted the striking effect on the working classes and the consequent leveling of mortality to 8 per 10,000. International statistics are confused by the age of civilization infection, and therefore only comparative interval figures for the same area are enlightening. However, it is noteworthy that Biraud reports a diminution in European countries, the United States, eastern Canada, Australia, New Zealand, and in Japanese states; and this in spite of more efficient diagnoses. Stationary, or on the increase, is the mortality for middle and South America, in India, in the Malay states, in French Indo-China, and China. Likewise, the tuberculosis transmitted from Europe

to Central Africa is spreading; while in French North Africa and the South African Unions, where the disease has been in existence longer, the figure for the white population is markedly declining, is stationary among the mixed races, but is increasing among the natives. Since the World War, there is a marked diminution in Sweden, England, Switzerland, and Germany. Dunn points out the existence of a disease minimum below which it is impossible to progress. In India the annual figures are inclining (31 per 10,000) and the heavily infected urban population are carrying the disease to the rural areas. The general hygienic and social conditions are bad; sanatoriums and dispensaries are lacking; while in the Scandinavian countries and in Holland the number of tuberculosis beds is greater than the mortality; and in Britian, the United States, and Germany they are equal; France has 2 deaths per bed; and Italy has 5 to 1 bed. In Italy, a regular and marked decrease in mortality has only begun since 1925. The female mortality between 5 and 19 years is higher than the male in Italy. In France, the mortality is relatively high, and statistics are unreliable. In Marseilles in 1926, the cause of death was unknown in 50%. The mortality decline is greater in the cities than in rural districts. In Madagascar the frequency and malignancy of tuberculosis is high (1/7 of the mortality). The same exists in Algeria, Morocco, and in the Sahara. Here the disease was rare before the World War.

Belgium shows a favorable gradual declining curve (around 7 per 10,000). In the Belgian Congo, infection varies from 10 to 60 per cent. Tuberculosis mortality in Switzerland has regressed less than the general mortality. Cities and industrial vicinities have shown the greatest decline. In Rumania and Greece the mortality is high. Lack of organization can yield little in these countries. In lower Hungary, dust and heat in summer, excessive cold and sharp winds, as well as unfavorable housing (14% without basements) act detrimentally. In Denmark, where favorable figures attain, no difference for rural and urban infection is noted; and there are 131 beds available to 100 deaths. In Greenland the morbidity (13-17% with pulmonary tuberculosis) and mortality are high. Figures for Lithuania, (28.7 per 10,000) Esthonia, and Poland are high with no tendency to a decline in mortality. Figures for Russia are not satisfactory, since death records were inadequate until 1925. The curve peak of war years was maintained longer than in other countries, and there was a sharp drop from 1923 on, coincident with social improvement. The mortality among the Kurds, Tartars, and Bulgars is distinctly higher. Mexico has shown a marked decline from 1900 (50 per 10,000) to 1929 (13), but racial statistics are lacking here. In Argentine and Brazil, tuberculosis is on the incline; while in the Philippines, no strides were made between 1926 (29.3 per 10,000) and 1930 (30.55). The mortality among Indians in the United States, Canada, and Mexico is exceedingly high. The racial problem, especially as concerns negroes, is complicated by location in the world. In many countries, the view is taken that tuberculosis is spread from the city into rural areas and that the incidence parallels the density of population. In rural areas infection of man with bovine tuberculosis assumes importance. Age statistics are numerous in civilized countries but are variable even as to nursling mortality; although a favorable decline is evident in all ages of childhood. If present figures prevail, the view of a predisposition to tuberculosis infection among the children of tuberculous parents will be unjustified (Schlesinger). In some countries (Servia, Poland, and Russia), infection of children shows an unfavorable inclining curve as measured by tuberculin tests. In the United States the incidence of tuberculin positive and tuberculous children among negroes and Indians is far greater than among the white. The school age infection figures are variable but increase with age is evident in all. The figures on sea-faring individuals are variable and unreliable; the rule of retire-

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Bilateral Simultaneous Pneumothorax; Report of Case with Discussion

BY
HARRY GOLEMBE A. B., M. D.
Liberty, New York

THE TREATMENT of Pulmonary Tuberculosis by means of Artificial Pneumothorax has been a well recognized therapeutic measure for many years. Its position in the field of collapse therapy is perhaps more firmly established than any of the other well recognized measures now in use to bring about cure of a tuberculous process by this means. During the past few years the use of Bilateral Collapse Therapy has become more widely recognized, starting as an alternating process in which first the more diseased lung was collapsed and, if necessary, after re-expansion of this lung followed by collapse of the contra-lateral lung, until now large numbers of patients are receiving bilateral simultaneous artificial pneumotharax with excellent results.

It is obvious that the cases suitable for this form of therapy must be very carefully selected and watched in every detail and that such type of treatment should only be undertaken by one well versed in the art of pneumothorax therapy. It is worthy of note that recently the use of bilateral apical thoracoplasty has been proposed and carried out with a fair degree of success in those cases in which pneumothorax therapy was not feasible because of pleural adhesions. As a matter of fact bilateral collapse therapy is no longer confined to pneumothorax only, but any two, and rarely more, of the well known procedures are now used on the same patient at the same time. It is not the purpose of this brief note to go into a lengthy discussion of this now well recognized phase of collapse therapy, but merely to call the attention of the man in general medicine to the fact that bilateral collapse is feasible and that one should not become discouraged because of the presence of bilateral excavation before careful study and observation has ruled out the possible use of this form of therapy.

In presenting this case, which I have captioned "A Case of Bilateral Simultaneous Selective Pneumothorax," it may be true that we are dealing here with only one case in which the end-result was ideal and does not give a true picture of the end-results in a large group of cases. One must not forget that the outlook for the average patient with extensive bilateral involvement with cavity formation is under ordinary circumstances a gloomy one and that despite this gloomy outlook bilateral collapse therapy has accomplished wonderful results in a fair proportion of cases. In treating tuberculous patients we should always aim for the ideal. This case presents all the ideal features of successful pneumothorax therapy and should serve as a criterion in judging the use of bilateral collapse therapy. Barlow and Kramer and many other writers have called attention to Selective Pneumothorax as the ideal method of collapse (a type of pneumothorax in which the diseased portion of the lung, more by virtue of its loss of elasticity than by design, remains collapsed while the healthy part of the lung is expanded and functioning). That this patient was fortunate enough to obtain this type of collapse on both sides is of itself worth recording.

Report of Case

Mrs. J. D., age 31, onset of tuberculosis indefinite; following death of mother from tuberculosis she began to complain of tiredness, weakness, loss of weight, and persistent dry hacking cough. She first came under my care July 30, 1930, when physical and x-ray examination disclosed the presence of a Moderately Advanced Active Pulmonary Tuberculosis with infiltration involving the right upper lobe where cavity formation was present subclavicularly; the left apex presented definite evidence of infiltration. Sputum was positive for

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Juvenile Tuberculosis

BY
MAX ROTHSCHILD, M.D.
Belmont, California

JUVENILE TUBERCULOSIS is characterized by a definite complex of symptoms. For an illustration I will give the description of the following typical case—one of many hundreds which have come under our observation.

A boy, age eight, son of a physician from a neighboring city. The father brought him to us principally because the boy was contracting one cold after another and having a slight afternoon temperature, at times reaching 100.2 (by mouth), but usually about 99.2 to 99.6. He complained of feeling tired in the afternoon, did not like to play with the rest of the boys as he used to do; and the teacher told the parents that their son was not as attentive and alert in school as previously. The parents also had noticed a change in his behavior. From a cheerful and happy child he had gradually become peevish and irritable. His appetite, which formerly had been excellent, became indifferent. Frequently he had severe coughing spells. Adenoids and tonsils had been removed, and as this operation had not caused any change in the symptoms, he was circumcised, again without any favorable results. The boy gave a history of measles at four years and whooping cough at five years. The parents were healthy. There had been a maid in the household who had occasional coughing spells but seemed to be perfectly healthy otherwise. When the boy was six years old, about a year and a half before we saw him, he had a slight attack of influenza.

On examination nothing abnormal could be found with the exception of enlarged cervical glands. Heart, lungs, liver, kidneys and blood were normal. But there was a definite D'Espine present. The whispered voice was intensified down to the sixth dorsal spine, and on fluoroscopic examination enlarged hilar glands were found on both sides and some peribronchial thickening could be seen. Small calcified glands were noticed bilaterally. These findings were confirmed by X-ray film. The Mantoux was strongly positive.

We have here a most typical case of juvenile tuberculosis. It is by no means necessary to find a history which is so definite and gives all the symptoms described above. In fact, at times these children look extremely well, but the slight temperature elevations in the afternoon are usually present, and not infrequently spells of dry coughing. But all of these symptoms are by no means found constantly; and another important fact is that on X-ray examination these heavy hilum shadows and enlarged glands are not always to be seen, but in those instances we find a more or less developed D'Espine. Normally in small children the whispered voice in back of the spine becomes as a rule distant in the region of the twelfth dorsal spine, in children up to eight years at the second thoracic vertebral process and in children up to fifteen at the fourth. But if there exists a solid tumor (which is a good sound conductor) between trachea or the large bronchi and the spine (as is the case in tuberculosis or neo-plastic bronchial glands), then the whispered voice becomes definitely intensified further down than it should be found normally. This symptom is, in my opinion, of the utmost importance in spite of the fact that one reads in many textbooks and publications that it is not of great value, or even that it is negligible. Another symptom which I consider of importance is the anisocoria, enlarged pupils on one or the other side, caused by intro-thoracical pressure on the oculo-pupillary fibres of the sympathetic. We find it frequently with enlarged tuberculous glands in the posterior mediastinum.

Before describing the treatment and prognosis of these cases it might be of interest to discuss their pathology.

It is an established and generally acknowledged fact that the primary focus of tuberculosis is usually found in the lungs

after the very first invasion of the bacillus. With the following alveolitis a non-specific defense takes place, followed by an exudative perifocal inflammatory reaction. With a slowly developing specific defense, this perifocal inflammation changes into an indurative sclerotic one; from an anergic phase an allergic one develops. After the first infection by the tubercle bacilli, no symptoms appear as a rule. The allergic change and the appearance of sensitiveness to tuberculin develop very gradually. The earliest Pirquet after an infection has been recorded by Dietl after four days (Archives of Kinderheilkunde); but it takes usually from two to four weeks after the first infection before the cutaneous tests become positive.

The further progress of the infection follows with the growing primary focus chiefly through the lymphatic ducts into the regional glands, especially the glands in the hilum region, and we find then the picture of Ranke's primary complex. The development of this primary complex takes place at times without producing any outspoken symptoms. The perihilar infiltration might also develop at times so slowly and to such a slight degree that it is not noticed at all. At other times it produces only temporary symptoms of illness.

In the great majority of cases these processes of infiltration are so light that they can only be recognized microscopically, and the perifocal inflammation cannot be observed clinically nor by X-ray. At times only a slight cloudy enlargement and intensification of the hilum shadows are noticed fluoroscopically. If, however, the perifocal processes should be more severe, then we find frequently afterwards the picture of a bipolar shadow in the hilum region.

In this short treatise we are only interested in the light cases which clear up slowly but entirely and which leave only small calcified glands in the lung fields and slightly enlarged glands in the hilum region. The effect of the infection is over and a restitutio ad integrum is a rule, and the child may remain entirely well and show no further symptoms. But other conditions might develop. An intercurrent sickness—measles, tonsillitis, whooping cough, severe cold, etc., etc., might undermine the present resistence and the old foci flare up again, or, in more serious cases, a fresh exogenous infection takes place. In this event, the glands might swell again and then produce the symptoms described above, combined frequently with severe coughing spells, almost resembling pertussis and due to mechanical pressure on bronchial tubes or nerves.

When we do find these enlarged bronchial or peribronchial glands, it is by no means to be understood that they must always be of a tuberculous character; but in these cases a differential diagnosis is of the greatest importance. We find enlarged tracheobronchial and bronchio-pulmonary glands in all infectious diseases which are accompanied by swelling of the glands in other areas of the body. We find them with infectious bronchitis, after influenza, after the different types of pneumonia, etc., etc. If a positive anergy is present, nothing is to be feared and the condition will become quiescent under general care. But if the cutaneous, or per-cutaneous reaction should evidence an allergic condition, then it would be a serious and at times fatal mistake to neglect the correct treatment.

Treatment:—The most important part of such treatment is rest and X-ray therapy. Some of us will remember that we used to rely on surgery, for instance, for the removal of the tuberculous glands of the neck. Occasionally at the present time one sees those deep disfiguring scars which were the result of surgery. But no sensible surgeon would operate those glands today; they are treated with X-ray radiation, and the results are most satisfactory, the glands usually resuming normal proportions promptly.

Rest in bed is imperative if the child has fever. With rest we combine salt water baths, balanced feeding, twice weekly inunctions with a tuberculin ointment, and later on in the course of treatment, direct

(Continued to page 24)

Use of X-Rays In Tracing the Reactions of Tuberculosis Immunity*

BY
HENRY SEWALL, M. D.
Denver, Colorado

NO STUDENT in the biology of Medicine today dares neglect the use of the magic revealer of vital processes realized in the X-rays.

I cannot claim to be more than a spectator from the sidelines in this field since those now ancient days of a quarter of a century gone.

Yet recent studies have impressed on me with something like the shock of a new discovery what is really an elementary principle in the interpretation of the X-ray film; namely, that we should perceive in the structures depicted not only the mechanical and anatomic alterations from the normal, but should deduce from these the play of physiological and pathological forces which has caused the tissue changes represented in the static pictures, and thus in cases due to bacterial infection we may hope to interpret the changes in terms of the reactions of immunity.

I venture to believe that herein is a field of perception which is far from being adequately developed.

I will come at once to the point and say that only a few years ago I gained what was for me a new conception of the wealth of meaning that the chest film from a tuberculous subject might have for the student of Medicine and Immunology. This cultural revelation was only made possible by my association with Dr. Kenneth Allen who made and interpreted the series of X-ray plates at critical periods during the early stages and throughout the course of a case of fulminating primary tuberculosis in a robust girl of 18 years.

To touch only upon the high points of the clinical record, it appeared probable that a Ghon nodule of primary infection, located about the mid-portion of the lower lobe of the left lung, had broken down and had led to the formation of a considerable cavity.

The high temperature and ready toxemia of the patient amply proved her tendency to absorption, which at the outset of her illness required a fortnight's bed rest to subdue.

It is not necessary in this audience to dilate on the modern discovery that the master-word in the control of tuberculosis activity is *Rest,* which, by the way, requires a technique in management known to astonishingly few of those who lack special training.

The patient who is the subject of this paper taught me to realize as never before a purely objective sign of tuberculous activity; one which antedates even subjective and clinical symptoms of focal activity, and which still lingers when rest has restored the feeling of well-being and allowed temperature and pulse to return to normal.

This objective sign of which I speak is *inflammatory congestion* centered in and spreading from the foci of tuberculous infection.

We know that inflammatory congestion connotes active disease, and in a case of primary infection, such as I am describing, the waxing and waning of such congestions plainly follow over-exercise or subside with rest.

The subjective distress and clinical symptoms excited in the tuberculous patient by acute exacerbations of the disease are apt to subside completely following a moderate period of rest, and the nurse or the unwary physician is tempted to allow the patient to then resume muscular exertion. But the careful attendant who first obtains another chest plate is apt to be astonished to find that the shadows cast by the diseased lung still de-

*Remarks of Section-Chairman, Symposium on Pulmonary Disease, of the Midsummer Radiological Conference, Denver, August 29-30, 1935.

note inflammatory activity though the patient is symptomatically well.

Thus, the objective signs of active pathology linger on the X-ray film, though all seems well in the bedroom; and it can be demonstrated that the X-ray evidence when it conflicts with the clinical estimate of the patient is a far safer guide for treatment than the latter.

I doubt not that countless lives have been sacrificed to tuberculosis through premature resumption of exercise in patients in whom early rest has magically allayed the external symptoms of active disease.

One such mistake may be tolerated, or even several,—but experience shows that haphazard repetitions of such insults tend to exhaust resistance and advance the pathological invasion.

I will not here take up the moot question as to whether the allergic reaction manifested by focal congestion is not itself the prime force which excites resistance and leads to cure. My point is that the safest course is to look before we leap,—and we can only look by the light of the X-ray.

This brings up the relation of X-rays to the study of immunity.

Please remember that the primary infection in our patient was concentrated in the left lung—predominantly in the hilum and the lower lobe. Here the congestions were renewed with every clinical exacerbation and their hangovers lingered. It seems certain that these areas of the lungs, nearest the source of toxemia, must have been inundated beyond all others with bacilli and that, if the patient was to achieve cure, it would be this part of the lung that would especially show the scars of battle, as in fibroid deposits, etc.

But, as a matter of fact, in our patient *this most heavily infected area* nearly completely escaped all anatomical damage.

I can only define the result as a manifestation of the most perfect stage of immunity, that in which the tubercle bacilli and their products undergo complete resolution—without tubercle formation;—i.e. are presumably dissolved under the influence of lytic antibodies produced by the lung tissues reacting to intense infection which still fell short of tissue resistance.

Now, while this perfect immunity was manifested in the immediate neighborhood of the focus of infection, something quite different was happening in the normal, distant right lung on the opposite side of the body.

In an X-ray film taken when the patient had just recovered, symptomatically, from a series of imprudent exertions, the inflammation in the *left* lung was subsiding; but on the *right* side, that contralateral to the site of disease, there appeared for the first time a congestive shadow at the right apex. When next pictured, after several weeks of enforced rest, the whole upper lobe or more of the right lung was found stippled with miliary tubercles. We must believe, then, that the assumed lytic antibody which had dissolved the infective matter on the left side was here lacking, or at least incompetent to annihilate the invading host of germs.

So here a new immunological mechanism of defense was brought into play. Briefly, if theoretically formulated, we may postulate that the outlying tissues of the right lung, which had become hypersensitive to contact with tubercle bacilli, through some physico-chemical surface change held fast to the germs, and also became the seat of tissue reactions causing new cells from the general circulation to accummulate which surrounded the bacilli and imprisoned them in what we call tubercles.

Briefly, to sum up, the X-ray films in this case seem to illustrate several factors and processes of immunity; *first*, is the allergic congestion which marks the intensity of tissue reaction to reinfection; *second*, is the evidence for resolution of the *materies morbi*, the tubercle bacilli, presumably through action of lytic antibodies; *third*, the apparent fixation of tubercle bacilli by hypersensitive tissues far from the focus of primary infection;

(Continued to page 24)

Spontaneous Pneumothorax

BY
H. FRANK CARMAN, M. D.
Dallas, Texas

IT IS NOT the aim of the writer to discuss in this paper the entire field of spontaneous pneumothorax with all of its causes. The discussion will be limited rather to that form of spontaneous collapse which occurs in otherwise healthy individuals. It is referred to in literature as ideopathic spontaneous pneumothorax. This is a term which should always be avoided, but for lack of a better term and a more comprehensive understanding of the pathologic background it is used. No doubt every physician, whether he is doing a specialty or a general practice, has been called at times to attend this type of case.

Lung collapses have been described since the days of Hippocrates. Some of these descriptions have been vague and indefinite, but enough information is given to convey the idea of collapsed lung. Many were probably due to tuberculosis, lung abscess or some other pathological process which was not diagnosed. Earlier writers, Laennec and Itard, described lung collapses from diseased lungs—no doubt tuberculosis.

Incidence: Spontaneous pneumothorax usually happens between the ages of eighteen and thirty-five. It occurs about five or six times as frequently in men as in women.

Onset: The attack usually follows some strenuous exertion either extrensic or intrensic. It comes on rather suddenly with pain in the affected side, and if the collapse is complete there will be dyspnoea. The complete collapse may be several hours following the exertion. In one case seen by the writer, there was an acute chest pain at the time of the exertion, but the actual collapse did not occur until three days later. It may occur without any definite exertion.

Diagnosis: The diagnosis is usually not very difficult. On inspection, the side of the chest affected will be immobile or partially so. On percussion, there will be hyperresonance on the affected side. On auscultation, there will be absence of breath sounds over the collapsed lung with compensatory breathing in the other lung. The heart will be shifted to the opposite side. If the collapse is of the left lung, the heart displacement will be more noticeable. The Roentgen ray will confirm the diagnosis.

Course: If proper care is taken these individuals soon recover. The lung usually re-expands in six to ten weeks unless there is an effusion, which will prolong the period of expansion. There may be some pleurisy with slight elevation of temperature during this period.

Prognosis: The prognosis is nearly always good. These patients seldom die. In fact, so few die that post mortem examinations are rarely had to study the pathology which causes the collapse. When death does occur it is usually due to one of three causes: 1. Asphyxiation, which may happen in either unilateral or bilateral collapse. 2. Right sided heart failure. 3. Complications such as asthma. The accident does not predispose to tuberculosis.

Pathology: The pathology responsible for the type of collapse discussed in this paper is more speculative than certain. In considering spontaneous pneumothorax from every cause, about 80 percent is due to tuberculosis. A small percent is due to lung abscesses, other infections and trauma. The ideopathic collapses are due to: 1. Emphysematous blebs, which probably cause the majority of them. 2. Tearing of a congenitally thin or fragile pleura by adhesions. 3. Cystic degeneration of the lung. 4. Localized bronchiectasis involving a single vessicle which dilates to the point of rupture. "Paschal's Principle" no doubt operates in this connection. 5. Atrophy of the visceral pleura.

Spontaneous collapse has a tendency to recur. Occasionally an individual is un-

fortunate enough to have a simultaneous bilateral spontaneous pneumothorax. Cases have been reported in which there was a congenital opening between the pleura; a spontaneous collapse of one lung resulting in a collapse of the contralateral lung also.

Treatment: These patients should be put on absolute bed rest until the lung has had time enough to re-expand, which will be six to ten weeks. The opening through the visceral pleura will usually heal in a few days. If the patient is allowed up too soon, there is a possibility of a recollapse of the affected lung, which may cause troublesome effusion. If the distress becomes too great, enough air should be removed from the pleural space to make the patient comfortable. This procedure can be repeated if necessary. However, needling the pleural space should not be done if it can be avoided. It is easy to over-treat these patients. Out of the group of eleven the writer has seen, only one has needed air removed from the pleural space. If given an opportunity, nature will repair the damage done. The patient can help most by remaining at absolute rest.

Film 1, made March, 1933, shows complete collapse of the left lung. The right lung is apparently normal.

Case Report

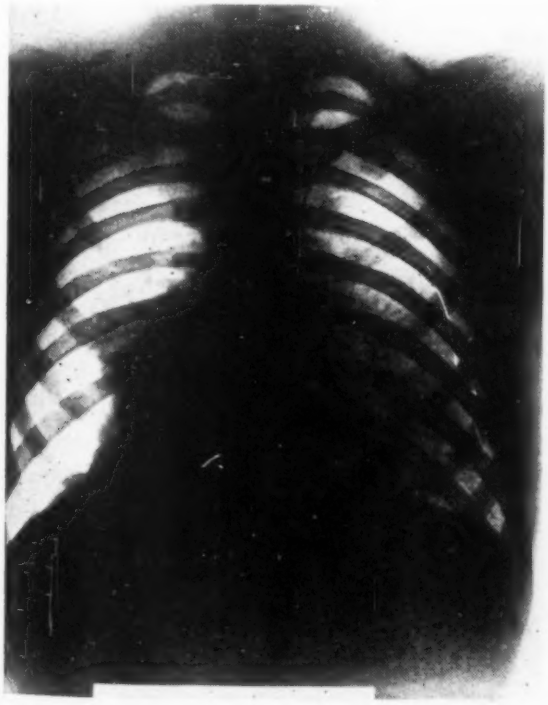
F. R. E., white, male, student, age 20, came under observation March, 1933. His family history was essentially negative. There was nothing remarkable in his past history. He felt well up to March 5, 1933. As he sat down to breakfast he developed a severe stabbing pain in his left chest which was followed by dyspnea. The afternoon before, he was struck on the chest while boxing. Examination a few hours later showed the patient slightly dyspneic with lagging of the left side of chest. There was a hyperresonant note on percussion over that side. Breath sounds were absent on auscultation. Fluoroscopic and Roentgen ray examination (Film No. 1) shows the left lung completely collapsed. The right lung was negative.

The patient was put on absolute bed rest for the first six weeks, and then gradually let up. In about eight weeks the lung had re-expanded. He had some pleurisy and shortness of breath during the first two or three weeks, after which he was quite comfortable. In September following he entered college and did a great deal of work outside of school to help defray expenses. He was examined frequently thereafter, and there was no further disturbance of pulmonary function.

On March 28, 1935, he was examined fluoroscopically, because he had been having some vague chest pains for several days. The note was made that there was no pulmonary pathology seen. He telephoned on the night of May 5 that he was having some acute pains through the right side of his chest, and was afraid that the right lung had collapsed. He failed to keep an appointment at the office the next day and was not seen until night May 6. He developed acute pain in both sides with marked dyspnea, and went to the hospital. Examination showed the patient in great distress, even cyanotic. There was very little motion to either side of the chest. On percussion, there was a hyperresonant note on both sides. The breath sounds were entirely absent on both sides on aus-

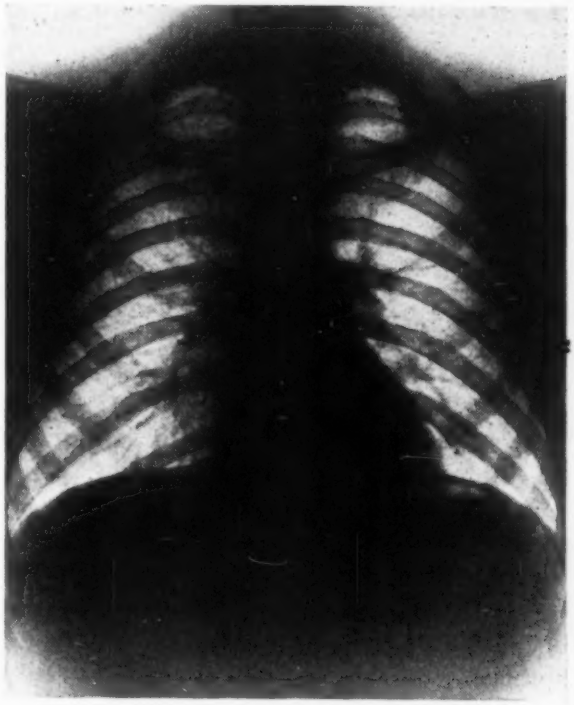
cultation. A diagnosis of bilateral collapse was made from the history and the physical findings. 1600 c.c. of air were removed from the left pleural space, after which he became much more comfortable. After being moved to the fluoroscope, he again became dyspneic, and 1400 c.c. more air were aspirated from the left pleural space and 1100 c.c. from the right side. This is more than is usually necessary to remove. Film No. 2, made May 7, shows the amount of collapse on both sides.

The patient was discharged from the hospital at the end of five days with detailed instructions regarding rest. He refused to take rest longer than ten days after leaving the hospital. Fortunately, nothing serious happened. A fluoroscopic examination at the end of three weeks showed both lungs almost re-expanded.



Film 2, made May 7, 1935, shows complete collapse of the right lung. There is about 50% collapse of the left lung after 3000 c. c. of air had been removed.

Roentgen ray film No. 3, made July 28, 1935, shows both lungs completely filling each pleural space with no pathology. During this period of convalescence he was quite comfortable in spite of the fact that he failed to rest as he was directed.



Film 3, made July 28, 1935, shows both lungs re-expanded with no apparent pulmonary pathology.

It remains to be seen whether there will be further trouble of this nature in the future.

Summary

During the past two and a half years the writer has observed eleven cases of ideopathic spontaneous collapse, all in males. Eight have been unilateral with no apparent pathology. Three were bilateral collapses. One had a very small collapse on both sides when discovered. There was questionably a fibroid pulmonary tuberculosis too. Another had a collapse of the left lung first, and a year later the right collapsed. There was no pathology found. The third one was described above.

TUBERCULOSIS caused 4,020 deaths in Texas during 1934, according to the State Department of Health. It ranks third as a cause of death in this state. The National Tuberculosis Association estimates that there are from 9 to 11 active cases per each death in any community. On this basis there are at least 36,000 active cases in the state of Texas.

THE IMPORTANCE OF PHYSIOLOGIC MEASURES IN THE TREATMENT OF TUBERCULOSIS
(Continued from page 11)

patients and by every one who passes by the room or bungalow. Then, too, there is the occasional visit of friends. Watching the birds and animals in the trees and parks also causes great interest, and helps the patient while away many a happy hour.

In this way the patients are kept happy and contented, and busy too, while resting; and, seeing themselves improve, they are looking forward to the time when they will be granted the privilege of sitting up, and then walking.

It requires considerable judgment to know when it is safe to permit certain patients to begin to sit up and take exercise. Nothing but experience will enable one to form the correct opinion in all instances. The experienced physician rarely finds it necessary to place a patient back on continuous bed rest after he has once started to sit up, but the one who does not have the correct idea of when activity has subsided frequently finds that he has allowed exercise to be taken too soon and finds that the disease increases in extent and severity coincident with the increased exertion. On the other hand, now and then patients are kept in bed long after activity has ceased because of the continuance of some symptom as a slight rise of temperature or tiredness, which may be due to other causes.

When exercise has been instituted it must not be pushed too fast. The patient must always keep within his strength even after the disease has ceased to be active.

When all activity is past and danger of spreading or of breaking down seems no longer present we permit the patient to start sitting up. He increases his time out of bed by five or ten minutes each day, usually the latter, until three hours have been attained; then we consider that the average patient is ready to start walking.

I shall discuss the technique of applying exercise to the tuberculous patient in another paper, for it is just as important when the time comes for its employment as rest is when the disease is active.

A DECADE OF INTERNATIONAL STATISTICS ON TUBERCULOSIS . . . . . (Continued from page 13)

ment for the afflicted navy personnel making such figures difficult to obtain in this branch.

In modern times a sex occasioned tuberculosis mortality among women plays no role, and industrialization removes this factor of difference between male and female figures. The incidence among Catholic nurses (Sisters) shows a gradual decline. Tuberculosis in the aged is on the incline (Gottstein) figured on the basis of those living at a definite age, but in absolute values it is insignificant and declining, although its danger lies in its hidden course and indefinite diagnosis. Paroli and Michaud found 6% in men and 5% in women over 60 years of age (mostly open cases). Braeuning figures there were 146,250 open cases of tuberculosis in Germany in 1932 with an average duration of life of 3 years.

The problem of transition from latent to manifest disease is still unsolved; and whether exogenous superinfection, a flare up of a primary lesion, or both play a role remains unsolved. Does conjugal tuberculosis assume importance? The figures are variable. Aside from exposition, disposition seems to play a role. The mortality and morbidity curve for tuberculous family hazards is without doubt decidedly higher than in non-tuberculous. Barclay found 7 times as many cases in the former.

Bovine tuberculosis is declining decidedly with the advent of Pasteurization.

The unbelievable appears to be that, especially in Europe, there exists even today, heavily infected regions that are ignoring the tuberculosis eradicating measures. Yet why, in some regions under almost identical measures, the mortality declines sharply while in others it does so only gradually, can only be explained on the basis of civilization and general hygienic grounds. That the sanatorium and its ramifications play a recognized

part both in reducing the level and maintaining a low level of mortality and morbidity in tuberculosis is universally recognized and depicted in all the statistics available. That it is a weapon to be kept at the highest level of efficiency, according to modern statistical evidence, to maintain the lowest level of tuberculosis mortality and morbidity, is a rational and modern conclusion.

BILATERAL SIMULTANEOUS PNEUMOTHORAX . . . . (Continued from page 14)

Tubercle Bacilli. Artificial pneumothorax was induced on the right side on August 1, 1930, and at the end of one month x-ray examination disclosed that the cavity was completely closed and that the pneumothorax was distinctly selective in type, the lower lobes being at most times fully expanded and functioning and the diseased upper lobe being fully collapsed. This was accompanied by a complete disappearance of all symptoms, repeated negative sputa, marked gain in weight, and improvement in general condition. In December, 1930, the patient was permitted to return to New York City, where pneumothorax refills were continued. In April, 1931, she again returned to Liberty, complaining of loss of weight, sweats, cough, profuse expectoration, fever, and tiredness. Sputum was positive for Tubercle Bacilli. X-ray examination disclosed that the right upper lobe was still completely collapsed and the lower lobe almost completely expanded, functioning and free from disease. The process previously noted on the left side had definitely extended and involved almost the entire upper lobe and subclavicularly close to the periphery a moderate sized cavity was present. The patient was given the benefit of six weeks of bed rest when further x-ray examination showed no change for the better on the left side and, if anything, that the cavity had become larger. In the meantime the pneumothorax on the right side was maintained. On June 23, 1931, pneumothorax was induced on the left side. Again a selective type of pneumothorax was obtained and within a month's time the cavity was completely closed. The collapse was continued on both sides simultaneously, refills being given at weekly intervals, one week on the left and the following week on the right, about 500cc of filtered air being introduced each time, and a negative intra-pleural pressure being maintained at all times. This was again accompanied by a complete disappearance of all symptoms, marked gain in weight, and a remarkable improvement in general condition. Sputum was repeatedly negative for Tubercle Bacilli. Simultaneous collapse was maintained until October 24, 1932 (a period of 16 months), when the right side was slowly permitted to re-expand. Refills were continued on the left side until May, 1933, when it too was slowly permitted to re-expand. Since that time repeated sputum examinations have been negative for Tubercle Bacilli and repeated x-ray examinations (the last July, 1935) have failed to disclose the presence of the tuberculous infiltration previously noted.

REFERENCES

1. Ornstein and Coryllos, Surgical Management of Bilateral Cases of Pulmonary Tuberculosis. (Read at meeting of American Association for Thoracic Surgery 1935.)
2. Barlow and Kramer Amer. Rev. Tuberc. 1922 vi 75.
3. Lillienthal Thoracic Surgery—Sanders and Company 1926.

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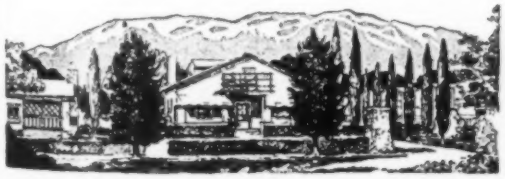

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C. E. ATKINSON, M. D.----------*Medical Director*

JUVENILE TUBERCULOSIS . . . . . (Continued from page 16)

sun. We use X-ray in these cases once weekly or every ten days, depending upon the reactions which follow. We have learned the great importance of small doses in the beginning. We usually start with 50 milli-ampere seconds, distance 32 inches, and use a 1mm. aluminum filter, alternately raying the anterior and posterior surfaces of the chest. The great importance of gradually increasing the dosage of X-ray and heliotherapy is evident. The inunctions with tuberculin ointment have also to be watched most carefully. Reactions are not uncommon and the strength of these ointments must depend on these reactions. Injections of tuberculin are rarely used and only in selected cases. Besides, children do not mind ointment rubs, while they object most strenuously to the hypodermic needle.

The result of this routine of treatment has been excellent and belongs to the group of the most satisfactory therapeutic measures known. But it takes patience, there are no short cuts. In some cases after only a few weeks all symptoms disappear, in others it requires several months. In children which do not easily develop a resistance, it might take a year, but this is most unusual. The important fact is that all these children get well. How much resistance to tuberculosis the correct treatment of these tuberculous glands will provide in their future lives, is still an open question and can only be established definitely in years to come by following up the many cases which have come under observation and treatment.

It is rather a source of satisfaction to me that the suggestions which I made regarding the treatment of tuberculous bronchial glands in children in a treatise written for the Journal of Better Health in the year 1926, have been substantiated by our experience in later years.

USE OF X-RAY IN TRACING THE REACTIONS OF TUBERCULOSIS IMMUNITY (Continued from page 18)

fourth, there is the local reaction of hypersensitive tissue assisted by allies from the general circulation, giving rise to the formation of tubercle.

In conclusion, under fairly complete rest, the horde of tubercles in our patient's right lung underwent fibrosis or calcification, and within two years the patient, earning her own living as a teacher and indulging in vigorous exercise, described herself as in the best state of health in her life.

My remarks have had to do with a case of *primary* tuberculous infection; doubtless the problem would be greatly complicated in a chronic case, the survivor of many relapses.

The conservative critic is bound to be wary of theory and it is with some satisfaction that I can announce here that a method has presented itself through which it is hoped the theoretical features of our contribution may be submitted to the test of animal experimentation.

TUBERCULOSIS ranks seventh as a cause of death among the white population in the South. The Southern negro, however, suffers a much greater death rate, as this disease is second as the cause of death among negroes.

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ABSTRACTS

This department is devoted to abstracts of articles carefully and judiciously selected by the Editorial Staff

DAVIES, DANIEL T., HODGSON, H. GRAHAM, AND WHITBY, LIONEL E. H.: A Study of Pneumococcal Pneumonia. Lancet, 228: 919-924 (April 20) 1935.

(Continued from October issue)

Type III Pneumococcal Pneumonia.—This form of pneumococcal infection is known to attack the debilitated and aged, and carries a high mortality. The course is often ill-defined, and the onset less sudden than in the types so far considered. Often the signs of consolidation are few. It is not surprising therefore to find that the opacity is unlike that seen in Types I and II. As a rule it is not homogeneous; frequently it is patchy and generally peripheral in distribution. The appearances also differ in that the level of the diaphragm usually remains unchanged. The date of resolution in this series varied between the thirteenth and seventy-second day.

This group, although small, contains most of the features accepted as characteristic of Type III infections. Of the 12 patients, five gave a history of chronic bronchitis, and in three of these calcification of the hilar glands could be detected. In the cases showing chronic disease of the chest, the consolidation was ill-defined and either resolution was delayed or the patient died. In contrast to these older subjects there is another class of patient—younger in years, with better defined consolidation, an early crisis and more rapid resolution.

It is significant that the authors have found more disparity between clinical and radiologic signs in this group than in any other. No clinical signs were discovered in four, yet three of these showed "hazy" opacities affecting one or more lobes. In only four of the 12 was there any close agreement between physical and x-ray findings. The reason for this disparity is the absence of any dense consolidation; it is patchy and more peripheral than central. When a consolidation is lateral and peripheral there is still a good deal of lung surface, both anteriorly and posteriorly, over which a reasonably good note and unaltered breath sounds are audible.

Group IV Pneumococcal Pneumonia.—Produced by a variety of non-specific pneumococci. Group IV pneumonia, although common, is less of a clinical entity than the others. Occasionally the infection is severe, but all grades may be met with, and grading is also evident in the local phenomena; some show well-defined consolidation, while in others there is little evidence of a local lung lesion.

In this group 22 patients were submitted to periodic x-ray examination. The opacity as a rule was only moderately dense and the distribution was usually peripheral. In one case the appearances closely resembled miliary tuberculosis; in two cases large cavities suggestive of tuberculosis appeared and disappeared completely during the illness. In the majority, the height of the diaphragm remained unchanged. The glands enlarged as resolution commenced, as in the other types. Resolution was complete in some cases as early as the fourteenth day; the average, however, was the thirtieth day.

There was close agreement between clinical and radiologic findings when the consolidation was dense, but when it was patchy and hazy the physical signs were as inconclusive as in Type III infection. In 12 of the cases consolidation was hazy, while six showed more extensive radiologic signs of involvement than were suggested by clinical examination.

In some of this group resolution was extremely rapid. One patient, a man aged 20, who showed a crisis on the fourth day, had considerable enlargement of the hilar glands, and resolution was complete

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by the eleventh day. In six in whom the hilar glands were greatly enlarged resolution was complete by the fourteenth. On the other hand, resolution was not complete until the thirty-sixth day in a young woman aged 20, and the only apparent explanation of the delay was the absence of any hilar enlargement.

Empyema developed in two of this group, and in both of them pus was aspirated on clinical evidence before any change could be seen in the x-ray films.

The Heart in Pneumonia.—Frequent radiography enabled the authors to keep close watch for changes in the heart during the illness, but in the whole series of 119 they found only three patients in whom there was any definite change in its size. Some films showed a prominent pulmonary cone, but they do not consider this change significant.

It is believed that cardiac enlargement during pneumonia is rare, but when it occurs it must be recognized as a sign of myocardial damage, even if only temporary.

The three cases with cardiac enlargement were moderately severe cases of pneumonia and they had no clinical symptoms suggestive of cardiac disability. In all three, however, there was a relative bradycardia—in one at the height of the fever, and in the other two following the crisis—and in all three a systolic pressure below 100 was recorded. The increase in cardiac diameter was 3.5, 1.9 and 3.1 cm. respectively.

Bradycardia during or following pneumonia is suggestive of some myocardial involvement; and if this finding is accompanied by a systolic blood pressure below 100, it should be a warning of the necessity for the utmost caution. This is probably the type of patient who (rarely, it is true) dies tragically and suddenly when allowed up too soon during convalescence.

It is sometimes important to make a diagnosis of lobar pneumonia with the utmost speed. A patient with high fever may show inconclusive local physical signs, and if serum treatment is contemplated a decision must be reached at once. Radiography 24 to 48 hours after the onset should show unmistakable signs if pneumonia is present.

HAWES, JOHN B., II: **Dust and its Relation to Tuberculosis.** American Review of Tuberculosis, 31: 601-610 (June) 1935.

In this discussion of dust and its relation to tuberculosis, the author confines his remarks to the so-called "harmless dust" eliminating those which contain free silicon. The harmless effect on a tuberculous process of the inhalation of sand, granite and other dusts containing free silicon is generally acknowledged and needs no further comment.

Those dusts which are generally looked upon as harmless, as far as the lungs and tuberculosis are concerned, comprise (1) those of organic origin, made up of the protein dusts some of which may occasionally cause asthma, hay fever or other anaphylactic phenomena, and the carbohydrate dusts, such as flour, which presumably have no effect, specific, irritating or otherwise, and (2) the inorganic nonsilicon-containing dusts including lime, marble, carbon and other elements. Talc, although a silicate, contains no free silicon and, along with other silicates with the exception of asbestos, is generally looked upon as harmless.

In the case of a man who has an arrested or quiescent tuberculous process in his lungs, of which he may or may not be aware, the question of his earning a living must come up. Is it safe for such a man to go into a dusty occupation even if the dust is a harmless one, and, should he break down and develop active disease, is a physician justified in testifying that this reactivation of his tuberculosis arose not only "in the course of" but "out of" his work? And again, if a man with a quiescent tuberculosis without knowing it, which for years has been compatible with perfect health and full working capacity on his part, breaks down at his work in which he has been exposed to one of these harmless dusts, are we justified in using a post hoc, propter hoc argument, and conclude that his relapse arose in the course of and out of his

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work? Also, are physicians, whether specialists in the subject or general practitioners, doing the right thing in forbidding patients to enter a trade in which dust of any kind is involved or are we inflicting an unnecessary hardship by telling a man he cannot go back to his old job to which he is accustomed and at which he can earn his living simply because he will inhale a certain amount of harmless dust?

From personal experience the author would answer these questions as follows:

(1) He does not believe that exposure to harmless dusts in normal amounts and under normal conditions will reactivate an arrested or quiescent tuberculous process. He does believe, however, that dust in excessive amounts under abnormal conditions, such as street dust in winter and fall or germ-laden dust from sleeping cars, etc., which might well cause irritation and infection of the throat, trachea and bronchi, is a potential source of harm.

(2) He does not believe that dust which may cause allergic phenomena, such as asthma, asthmatic bronchitis or hay fever, will reactivate or harm a tuberculous process.

(3) As to allowing an arrested or quiescent tuberculous patient to take up a trade in which he would be exposed to a harmless dust, the author admits that, as a result of his study on this subject, he would be quite willing to allow his patients to take up such dusty work unless the conditions as to the dust were extremely bad.

CHARLES C. MACKLIN, M.D.: The Dynamic Bronchial Tree. Am. Rev. Tuberculosis, 1932, XXV, 393-417.

An attempt is made to visualize the *locus* of pulmonary tuberculosis. The purely conducting part of the bronchial tree (that is everything up to, and including, the fine, smooth-walled bronchioles) is envisaged as undergoing a lengthening with inspiration and a shortening with expiration, and the details of this process are explained with diagrams. The peculiar shape and mode of action of the pleural cavity make it necessary to shift the lower part of the lung during inspiration in a downward, forward and outward direction, if the part above and behind the hilum is to expand properly. The root of the lung is of very great importance in this movement, of which the reverse phase is seen in expiration. It is suggested that the normal flexibility of the root may be impaired from disease processes, and that this will hamper lung ventilation, especially in that part lying above and behind the hilum. The advisability of ascertaining the normal range of movement in the root, particularly in children, is stressed, and the possible relation of interference with this movement to pulmonary tuberculosis advanced. (Author's abstract.)

COOPER, A. T.: Some observations as to the results of phrenic exeresis in pulmonary tuberculosis, Annals of Internal Medicine. Vol. 4. No. 12, p. 1569.

Reporting 200 phrenicectomies performed at Fitzsimmons General Hospital (1922-1931), Cooper found that approximately 70% of those operated on the right side showed definite rise of the diaphragm and only 55% of those operated of the left side showed a definite rise. He points out, however, that the paralysis of the diaphragm decreases pulmonary ventilation and action, and improvement follows without the aid of a rise in the diaphragm (vertical compression) in many cases.

The operation is of value in many cases of pulmonary tuberculosis where the lessions are mainly unilateral. It is of special use where pneumothorax is impossible. A good rise in the diaphragm may ensue even in the presence of adhesions. Phrenic-exeresis is particularly indicated in unilateral cavitation involving the lower or central part of the lung. A tendency toward compression is noted in 42% of the cavities in mid-lung or base, while only 30% of the cavities higher in the lung than the central portion have been noted to be definitely benefited.

Phrenic-exeresis is useful as a preliminary step where complete thoracoplasty is contemplated, as sufficient collapse may be obtained with resection of fewer ribs and less deformity. Also it is useful as a preliminary procedure to test out the contralateral lung.

The operation frequently ameliorates much of the distressing and wracking cough present in far advanced cases and enables the sputum to be raised with less effort.

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CASE REPORTS*

*This page is devoted to Queries and Answers as well as Case Reports.
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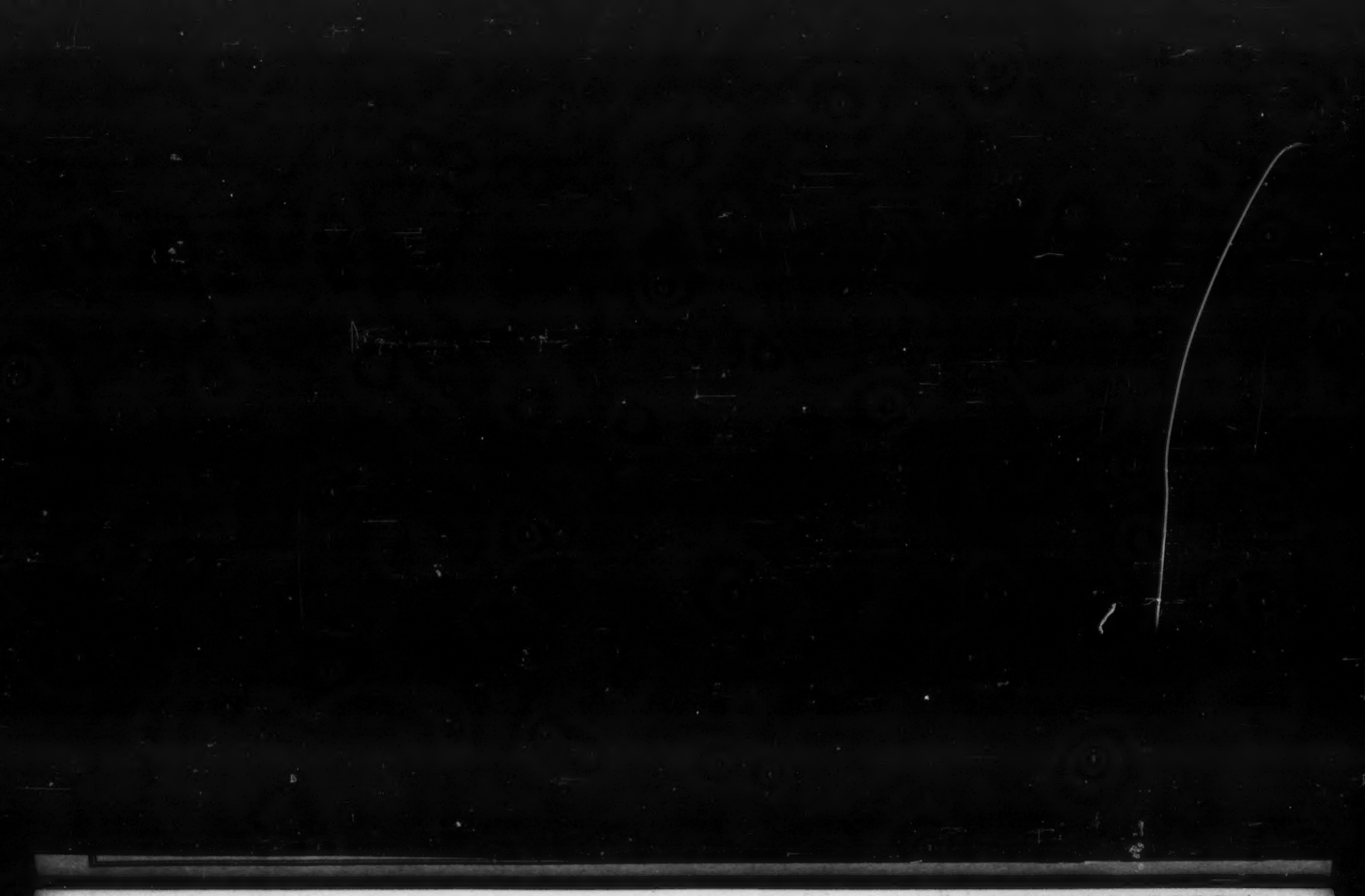
TRAUMATIC HEMO-THORAX

R. H., age 21, American, family history negative. Occupation, truck driver.

Present history: While driving a large truck had head-on collision with another truck, patient was thrown violently forward against steering gear, was picked up in severe state of shock and admitted to hospital within thirty minutes after the accident.

Preliminary examination: Patient in severe state of shock, blood pressure could not be determined, marked distention of abdomen. Laboratory report showed urine to be normal. *Blood Count*: *Hemoglobin* 60%. *Red cells* 3,000,000. *White cells* 4,500. Tentative diagnosis, severe abdominal hemorrhage. During the first 24 hours, patient's condition remained grave, however, during the next 24 hours, patient improved. Improvement continued uninterruptedly for 10 days when he was seized with severe pain in lower left chest which was accompanied with temperature of 103. X-ray and fluoroscopic examination indicated the presence of fluid. Aspiration was done and 50 c. c. of fluid was withdrawn, cultures of which were negative. Patient's temperature remained 101 to 103, pain continued and numerous aspirations were done each time the amount of serous fluid growing less, until only 1 to 2 c. c.'s could be secured. At this time I was consulted.

Physical examination: of chest, showed marked dullness and absence of breath sounds in the lower lobe, left lung. X-ray films showed marked haziness over the same area. 50 c. c.'s of Iodized Oil were injected into the pleural cavity at the site of former aspirations. X-ray film following injection of iodized oil indicated a large collection of the Iodized Oil assuming the shape of an hour-glass. Diagnosis of hemo-thorax was made and the 9th rib resected in mid-axillary line and an immense blood-clot removed. The remaining cavity was packed and patient returned to his room, that night he had a severe hemorrhage into the pleural cavity, blood transfusion was done and repeated on 3 occasions. The packing then was removed very slowly from day to day and during the next few weeks the patient's recovery was slow, but at this time he is fully recovered.

Remarks: The patient's grave condition at time of admission to hospital was unquestionably due to shock and hemorrhage. His subsequent improvement for 10 days was due to the fact that the hemorrhage in the pleural cavity was controlled by pressure and the blood clot. Evidently the severe pain in the side and the sharp rise in fever was due to absorption of the partially decomposed blood clot. The small amount of serous fluid was simply blood serum, resulting residue from the organized blood clot.

EVERY THOUGHTFUL physician in every line of medical work may well pause frequently these days and meditate upon the changing trends of medicine. It is necessary that he free himself, so far as possible, from the traditions of the past, the local customs of his area, and the limitations with which his professional habit of mind has subjected him by its routine. It is easy to see an evolution that has nearly ended. It is difficult to see an evolution in its beginning or before its direction is well established. No doubt the next generation will be beset with profound social and economic changes that will uproot the traditions of the past and the customs of the present.